REMARKS

The Claim Amendments

Applicants have canceled claims 40 without prejudice.

Applicants have amended claim 1 to recite "a pharmacologically acceptable addition salt thereof." Support for this amendment may be found, e.g., in the specification at page 21, line 27 to page 22, line 2 and in claim 2 as originally filed.

Applicants also have amended the definition of $\mathbf{R_1}$ and $\mathbf{R_2}$ in claim 1 to recite the specific substituents on aryl. Support for this amendment appears, e.g., in the specification at page 9, lines 16-19.

Applicants also have amended claim 1 to more clearly depict the structures of the cyclic groups defining $\mathbf{R_3}$.

Applicants have canceled the recitation of "phosphono" in claims 1 and 11. Applicants have canceled the recitation of "R_5-alkylamino" in claim 1. Applicants have also canceled the recitation of the substituted alkyl, alkenyl and alkynyl substituents on the bicyclic and tricyclic groups defining $\mathbf{R_3}$.

Applicants have amended claim 1 to recite "(heterocyclylalkyl)amino" and "(sulfoxyacyl)amino" rather than "heterocyclylalkylamino" and "sulfoxyacylamino," respectively. Support for these amendments appears, e.g., in the compounds depicted in Figure 1.

Applicants have amended the definition of $\mathbf{R_5}$ in claim 1 to replace "$-SO_3NHCOR_4$," and "$-SO_3NHCONHCO_2R_4$" with "$-OSO_2NHCOR_4$," and "$-OSO_2NHCONHCO_2R_4$", respectively, in order to clarify the connectivity of these substituents. This error would have been obvious to one of ordinary skill in the art.

Applicants have amended claims 41 and 42 to improve their form by replacing the term "condition" with the term "disease." Applicants also have amended claims 41 and 42 to delete reference to certain diseases.

None of these amendments adds new matter. After entry of the amendments, claims 1 – 6, 11, 39 and 41-42 will be pending.

The Rejections

35 U.S.C. § 112, second paragraph

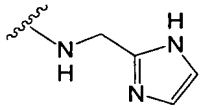
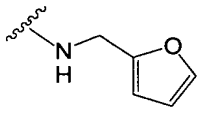
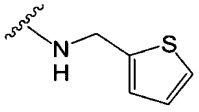
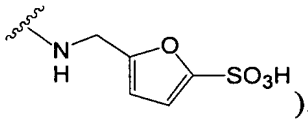
The Examiner has rejected claims 1-6 and 39-42 under 35 U.S.C. § 112, second paragraph. Applicants respond to the Examiner's specific contentions by paragraph number below.

Paragraph 1

The Examiner contends that the term "R_5-alkylamino" is ambiguous because it is not clear whether R_5 is on the alkyl or is a second substituent on the N. To expedite prosecution, applicants have amended claim 1 to delete reference to "R_5-alkylamino," thus, obviating this rejection.

Paragraph 2

The Examiner contends that the term "heterocyclylalkylamino" is ambiguous because it is not clear whether the heterocyclyl is on the alkyl or is a second substituent on the N.

Applicants disagree that the term "heterocyclylalkylamino" is unclear as to the connectivity of heterocyclyl. As used herein, the term "heterocyclylalkylamino" refers to "(heterocyclylalkyl)amino," as shown, e.g., in the compounds set forth at FIG. 1E, column 4, row 3 (depicting the substituent ); FIG. 1H, column 4, row 2 (depicting the substituent ); FIG. 1H, column 4, row 4 (depicting the substituent ); and FIG. 1I, column 2, row 4 (depicting the substituent ). Accordingly, for clarity, applicants have amended claim 1 to recite "(heterocyclylalkyl)amino" rather than "heterocyclylalkylamino." This amendment overcomes the rejection.

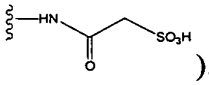
Paragraph 3

The Examiner contends that claim 2 is improperly dependent on claim 1 because claim 1 has no provision for salts.

Applicants have amended claim 1 to recite "a pharmacologically acceptable addition salt thereof," thus, obviating this rejection.

Paragraph 4

The Examiner contends that the term "acyl" is indefinite because it is not clear whether it embraces acids of S, P or As and what the stem looks like. The Examiner further contends that it is unclear for example where a sulfoxy group is attached in "sulfoxyacylamino."

Applicants disagree that the term "acyl" is indefinite. The specification at page 9, lines 24-27 makes clear that "acyl" is a straight or branched alkyl-C(=O)- or a formyl group. As used herein, the term "sulfoxyacylamino" refers to "(sulfoxyacyl)amino," as shown, e.g., in the compounds set forth at FIG. 1H, column 5, row 4 (depicting the substituent (

). Accordingly, for clarity, applicants have amended claim 1 to recite "(sulfoxyacyl)amino" rather than "sulfoxyacylamino." This amendment overcomes the rejection.

Paragraph 5

The Examiner contends that "substituted aryl" is unclear.

Applicants disagree that the term "substituted aryl" is unclear. The specification at page 9, lines 16-19 makes clear that a "substituted aryl" is an aryl group that is substituted with one or more substituents such as alkyl, alkoxy, amino, nitro, carboxy, carbalkoxy, cyano, alkylamino, dialkylamino, halo, hydroxy, hydroxyalkyl, mercaptyl, alkylmercaptyl, trihaloalkyl, carboxyalkyl, sulfoxy, or carbamoyl. Accordingly, for clarity,

applicants have amended claim 1 to recite these specific substituents on aryl. This amendment overcomes the rejection.

Paragraph 6

The Examiner contends that the last two substituents on the 4th line of the R_5 definition appear to be misdrawn. Applicants have redrawn these substituents to recite "$-OSO_2NHCOR_4$," and "$-OSO_2NHCONHCO_2R_4$." This overcomes this aspect of the rejection.

Paragraph 7

The Examiner states that the phrase "condition characterized by" in claims. The Examiner contends that this phrase could "refer to a condition which has this as its cause, or a condition which has this as its effect." To expedite prosecution, applicants have canceled claims 40 and have amended claims 41 and 42 (formerly dependent therefrom) to delete this phrase, thus, obviating this aspect of the rejection.

Paragraph 8

The Examiner states that the term "elevated adenosine concentration" in claims 40 is ambiguous. The Examiner contends that terms of degree are indefinite when the specification contains no "explicit guidelines" to distinguish from things that are not so. To expedite prosecution, applicants have canceled claim 40, thus, obviating this aspect of the rejection.

Paragraph 9

The Examiner states that the phrase "increased sensitivity to adenosine" in claims 40 is ambiguous. The Examiner contends that terms of degree are indefinite when the specification contains no "explicit guidelines" to distinguish from things that are not so. To

expedite prosecution, applicants have canceled claim 40, thus, obviating this aspect of the rejection.

Paragraph 10

The Examiner states that the disorder "hyperactivity" is vague. The Examiner contends that it is unclear what is hyperactive and states that almost anything in the body can be hyperactive. To expedite prosecution, applicants have amended claim 41 to delete reference to this term, thus obviating this aspect of the rejection.

Paragraph 11

The Examiner states that choices 3 and 8-10 for the bicyclic, tricyclic or pentacyclic groups defining $\mathbf{R_3}$ are poorly drawn and has requested clearer structures.

Applicants have redrawn these structures to more clearly represent the angles for the carbons in the structures, thus, obviating this aspect of the rejection.

In view of the foregoing amendments and remarks, applicants respectfully request that the Examiner withdraw the 112, second paragraph rejections.

The Rejections under 35 U.S.C. § 112, First Paragraph

Part I — Written Description

Claims 1-6, 11 and 39-42

The Examiner contends that claims 1-6, 11 39-42 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention. Specifically, the Examiner contends that the replacement of phosphate with "phosphono" is new matter. To expedite prosecution, applicants have amended claims 1 to delete reference to the term "phosphono," thus obviating this rejection.

Applicants acknowledge that the Examiner states that oxo is not new matter.

Part II — Enablement

The Examiner has rejected claims 40 – 42, for lacking enablement. The Examiner acknowledges that the specification is enabling for some disorders, but contends that it does not reasonably provide enablement for cardiac and circulatory disorders, degenerative CNS disorders, Parkinson's disease, post-stroke neurological deficit, dyslexia, hyperactivity, cystic fibrosis, edematous conditions, renal dysfunction and the generic language of claim 40.

To expedite prosecution, applicants have canceled claim 40 and amended claims 41 and 42 to delete reference to cardiac and circulatory disorders, degenerative CNS disorders, Parkinson's disease, post-stroke neurological deficit, dyslexia, hyperactivity, cystic fibrosis, edematous conditions and renal dysfunction, thus, obviating this rejection.

The Obviousness-Type Double Patenting Rejection

The Examiner has rejected claims 1-6, 11 and 39-42 under the judicially created doctrine of obviousness-type double patenting over claims 1 and others of United States Patent 6,649,600 ("the '600 patent"), which issued from the parent of this application. Specifically, the Examiner states that although the claims are not identical, they are not patentably distinct from each other because there is extensive overlap with the claims of the '600 patent.

Applicants will submit a terminal disclaimer when the Examiner determines that the claims are otherwise in condition for allowance.

The Rejection Under 35 U.S.C. § 103

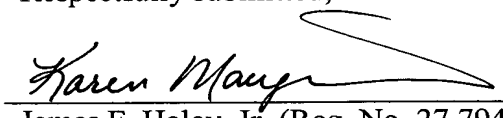
The Examiner has rejected claims 1-4, 6 and 39 – 41 under 35 U.S.C. § 103 as allegedly being unpatentable over Suzuki '782 ("Suzuki 1"), WO94/16702, Suzuki et al. (1992) ("Suzuki 2") or Shimada et al. (1992). Specifically, the Examiner contends that examples 29 and 11 of Suzuki 1, compounds G and E of WO94/16702, compounds 44 and 45 of Shimada and compounds 22 and 23 of Suzuki 2 show the adamantyl group with or without a methylene linker. The Examiner contends that applicants' claimed compounds are the same "except that the adamantyl has a methyl group stuck on."

Applicants disagree that the claims are obvious in view of Suzuki 1, WO94/16702, Suzuki 2 and Shimada. Suzuki 1, WO94/16702, Suzuki 2 and Shimada all disclose compounds wherein the substituent at the R_3 position of applicants' compounds is an unsubstituted adamantyl (either with or without a methylene linker attaching the unsubstituted adamantyl group to the core structure). In contrast, the claims of the instant application recite compounds wherein the adamantyl group at the R_3 position is variously substituted. The structural non-obviousness of the compounds of the present invention coupled with their demonstrated utility as adenosine receptor antagonists renders the claims of the present invention non-obvious over Suzuki 1, WO94/16702, Suzuki 2 and Shimada, either alone or in combination. Accordingly, applicants request that the Examiner reconsider this rejection.

Conclusion

In view of the above, applicants request that the Examiner examine the pending claims in this application.

Respectfully submitted,



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